ADMINISTRATION REPORT

OF THE

PUBLIC WORKS DEPARTMENT,

(BUILDINGS AND ROADS BRANCH,)

BOMBAY PRESIDENCY,

FOR THE YEAR

1883-84.

Bombay:
PRINTED AT THE GOVERNMENT CENTRAL PRESS

1884.

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on 11 July, 2017

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FOR THE YEAR 1883-84.

GENERAL REMARKS.

1. The total expenditure of the year was Rs. 73,33,716, as per margin. The expenditure in India was Rs. 73,25,072. In round figures, the expenditure on New Works was Rs. 30½ lákhs; on Repairs, Rs. 26¾ lákhs; on Establishment, Rs. 14 lákhs; on Tools and Plant, Rs. ¾ lákh; and on Barrack Department (chargeable to Military Grant), Rs. 1¾ lákhs.

	In India.	Rs.
Imperial ...	... ...	13,81,813
Provincial	... ...	35,96,589
Contributions	... ...	2,41,646
Local Funds	... ...	21,05,024
	Total Rs. ...	73,25,072
In England	... ...	8,644
	Grand Total Rs. ..	73,33,716

I.—MILITARY WORKS.

2. The expenditure under the head Military was Rs. 10,70,370, of which Rs. 2,65,770 was for Original Works; Rs. 4,71,993 for Repairs; Rs. 1,77,425 for Establishment; Rs. 11,183 for Tools and Plant; and Rs. 1,43,999 for Barrack Department.

1.—ACCOMMODATION FOR TROOPS.

BUILDINGS FOR EUROPEAN TROOPS IN THE PLAINS (PERMANENT.)

3. A Hospital for British Troops at Ahmedabad, which has been described in previous reports, is under construction, and the progress made has been as follows:—

Male Hospital.—In the first floor rolled iron beams and Westwood and Baillie's corrugated plates have been substituted for planked floor on teak girders, and the iron work has been ordered. Foundations and plinth completed; and the superstructure raised to 17½ feet.

Female Hospital.—Superstructure raised to 13 feet.

Of the subsidiary buildings, viz., the guard-room, 25′ × 22′, for 6 men; prisoners' room, 23½′ × 10′,; lavatory 8′ × 8′, and latrine, 8′ × 6½′, with open verandah on 3 sides, the superstructure has been raised to verandah roof; and the apothecary's quarters, apprentices' quarters for 2 men, servants' quarters, ambulance cart shed, and mortuary, have been completed. Total expenditure, Rs. 92,632, of which Rs. 37,220 have been expended in 1883-84.

4. The Prison Hospital, with out-houses, in the Central Military Prison at Poona, has been appropriated as a barrack for single warders, and walled off from the rest of the Prison buildings, at a cost of Rs. 6,491.

5. The Canteen at Camp Devlâli having been destroyed by fire on the morning of 1st December 1883, has been completely restored to its former state, at an outlay of Rs. 8,432.

6. The upper male ward of the section of the Station Hospital, Crater, Aden, was re-roofed. In plan the building has been converted into two wards by the erection of new walls, and the whole has been covered with a concrete terraced roof, supported on iron rafters and girders, at a cost of Rs. 5,173.

BUILDINGS WHICH ARE EXPECTED TO YIELD A RETURN ON THEIR OUTLAY.

7. The old bungalow No. 5 on Ras Tarshyne at Steamer Point, Aden, was reconstructed. The new building consists of brick pillars, with concrete masonry partitions, cut wood trellis and doors, with a new jowli roof.

BUILDINGS FOR NATIVE TROOPS.

8. The new Native Infantry Lines at Jacobabad, which were commenced in December 1881, and estimated to cost Rs. 1,59,752, have been completed during the year, though payment for the work done has, for financial reasons, been deferred till April 1884. The lines consist of 16 pendals, for half a company each. The foundations, plinths, arches, a foot round the doors and on the top of the walls are of pucka brick masonry, and the remainder cutcha; roofs flat, pucka teak beams, cut babul rafters, 2" flat tiles set in lime, 3" concrete, and ½" chunam plaster. These are excellent pendals for native troops. Expenditure up to the close of the year, Rs. 98,109.

9. The new Lines for Sappers and Miners at Steamer Point, Aden, commenced in 1881-82, were completed during the past year at a total cost of Rs. 35,301.

2.—ORDNANCE WORKS.

10. The floor of the Grand Magazine at Kirkee, which was of teak-wood, and had perished with dry rot, has been renewed, and the powder racks refixed, at a cost of Rs. 3,371. The material used in this new floor was concrete, with a pure Portland cement skin, covered with two coats of dammer, and the old lead sheeting relaid.

The roofs of the several buildings in the Gun Powder Factory have had the canvas removed, and in its place a covering of No. 20 gauge corrugated iron has been laid. The charcoal picking house, which was not formerly protected against lightning, has been provided with a lightning conductor of copper band, $1\frac{1}{4}'' \times \frac{1}{8}''$, connecting the roof with the nearest water pipe. Total expenditure, Rs. 17,740.

11. Lightning conductors of patent continuous bands, $1\frac{1}{4}'' \times \frac{1}{8}''$, with 38 terminals, have been fixed to the roofs of the buildings of the Small Arms Ammunition Factory at Kirkee. The total length of copper band used is 3,302 R. ft., and the total height of each terminal above the roofs is 20 feet. The cost has been Rs. 6,764.

A line of tramway has been laid between the Cartridge-filling rooms Nos. 2 and 3. The rails are laid on transverse sleepers, resting on longitudinal teak joists, 8" × 3", laid on brick and lime masonry piers. A second line of tramway has been laid from the iron strip cleaning shed to the hand operation room.

The open front of the iron strip cleaning shed, in the same factory, which is 130 feet in length, and 11½ feet in height, has been enclosed to a height of 3' above plinth level with teak planking 1" thick. The remaining open space between the planking and post plate has been formed into a continuous glazed front, divided into two, the upper portion fixed, and the lower with glazed revolving shutters on pivots.

A wooden shed, 10' × 8', of teakwood throughout, has been constructed for the Rifle Rest for testing caps.

A room for soldering up boxes, 16 feet high to tie beam, and 24' × 24', has been constructed, with a verandah 10 feet wide. An 18" gauge tramway has been provided in the north verandah, and also in the centre of the room, with a turntable.

The following works in the same factory were also carried out:—

Timber shed.—This building is 225' × 20' in the clear, and is open on the north side, the roof being supported by teak-wood posts, placed at regular intervals. The walls are 1½' thick, that on the south side being strengthened by 12 pilasters, 12' high, and projecting 6", placed at regular intervals from centre to centre.

Gate-keeper's office.—This building consists of one room, 16' × 12' inside, with a verandah in front and rear, 10½' wide.

Enclosing the front of Tinman's shop.—The front of this building has been enclosed with teak-wood planking, 6" wide and 1" thick, to 3' above plinth. The portion between planking and post-plate has been formed into a continuous glazed front, divided longitudinally into two portions, the upper being fixed, and the lower arranged to form glazed shutters revolving on pivots. As the building faces the west, and is, therefore, exposed to the afternoon sun, a verandah 8' wide has been put up to moderate the heat, intensified by the sun's rays passing through the glazed front. The verandah roof, which is single-tiled, is supported by teak-wood posts at intervals of 9½'. The floor is of fine moorum, well rammed.

The building for Lubricating Bullets, consisting of two rooms, measuring, respectively, 20' × 20' and 30½' × 20', with an open passage 10' wide, for the existing tramway, surrounded by an open verandah 7' 9" wide in the clear, is in course of construction. Foundations and plinth are completed, and the superstructure, arching, and pavement are in progress.

Moulders' shop.—This building, which is in course of construction, measures 23'×35', and is being erected in continuation of the smiths' shop.

To admit more light into the main factory, the roof is being converted into a saw-tooth roof, by fixing a vertical glazed frame from the centre purlin to meet the roof, extended for that purpose. This work has only just been commenced.

Estimated amount, Rs. 34,545; total expenditure, Rs. 22,163.

12. A new shed for machinery in the Arsenal at Bombay, 180 feet by 33 feet, was in progress. The roof is of wrought iron trusses, on cast iron columns. Estimate. Rs. 21,050; expenditure in 1883-84, Rs. 8,750.

13. The Ordnance Depôt at Ahmedabad, commenced in 1881-82, was in progress. During the year the superstructure of the Powder Magazine has been raised 15 feet, and the main arch turned; but, owing to want of funds, the work proceeds very slowly.

The ball ammunition room, shifting room (with the exception of planked passage), work-shop, and guard-room have been completed. Expenditure during 1883-84, Rs. 16,154.

7.—GENERAL CANTONMENT WORKS.

Water-supply.

14. Two new machines, calculated to produce 15,000 gallons of water per day, have been set up in a new condenser house at the Seera Condenser, at the Crater, Aden. The work has been completed at a total outlay of Rs. 9,069.

15. Pipes have been laid from the iron water tanks to the Native Infantry Lines at the Crater, and a tank built near the Native Infantry Lines, to hold 3,000 gallons, at an outlay of Rs. 3,242.

Drainage and Clearance.

16. Works for the improvement of the drainage of the European Barracks at Hyderabad were undertaken. The work consists of laying down drains of pukka brick-work, of semi-circular section, and bedded in concrete, to carry off the surplus water of lavatories, cookrooms, &c. The expenditure during the year was Rs. 4,207.

Cantonment Works.

17. Two openings of 25 feet have been made in the Seera Causeway at the Crater, Aden. The work was undertaken to increase the scour of the tides in Front Bay, which was silting up.

8.—FORTIFICATIONS.

18. A building to be used as an Electric Light Test House at Butcher's Island, Bombay, was completed. It has two rooms, one for Electric Light, 18'×16', and the other for Test Room, 40'×16', with a verandah in rear, 24'×5'. Roof of corrugated iron, on cast iron columns, to verandah: foundations, plinth, and walls of masonry: floor of cutstone: doors and windows of teak, plain planked, glazed and venetianed; roof of teak frames and Mangalore-tiled. The rooms are provided with tables, shelves, &c.

19. The buildings in connection with the Submarine Mining Defences at Manora, Karáchi, consisting of a magazine for gun cotton, a primer room, a loading room, and a general store-room, were constructed of squared and finely-dressed Karáchi stones, with teak trussed roofs, with Allahabad pattern tile coverings. The store-room has two large tanks in its wide verandah, capable of storing 16 miles of electric cable. Suitable fittings and furniture have been supplied to the several buildings. This portion of the work has been completed at a total cost of Rs. 39,228.

No progress has, however, been made with the construction of the Pier and Tramway, and erection of the machinery, as funds were not available, although the two cranes were received from England, and the piles were procured under the previous year's contract. The total expenditure to 31st March was Rs. 9,140, out of the sanctioned estimate of Rs. 29,940.

20. Nothing was done during the year on the protection of Manora Point, Karáchi, beyond the ordinary repair of the portion executed under the first sanction, as funds were not available for the remaining length, sanctioned at a cost of Rs. 1,09,943, which it would be very desirable to proceed with under the consideration adduced by the Defence Committee, as the cliff continues to suffer.

9.—DOCKYARD AND NAVAL BUILDINGS.

21. In Her Majesty's Dockyard, Bombay, a building for the extension of the Factory Workshops, 180'×40' inside, and 28 feet to tie beam, has been constructed alongside the boiler-makers' shop, to accommodate additional plant and machinery. It is open on three sides, and roofed with Mangalore tiles, on stone pillars and arches. The cost was Rs. 33,819.

22. Lascars' quarters, consisting of two rooms, one 69½′ × 19′, and the other 59½′ × 19′, with two cook-rooms, 14½′ × 19′ each, and 8′ high to tie beam, have also been constructed. Foundations and plinth of lime masonry: walls of brick nogging; doors and windows of teakwood, plain planked; roof of teakwood and Mangalore tiles. Estimate, Rs. 17,274: expenditure in 1883-84, Rs. 7,157.

II—OTHER SERVICES.

I.—CIVIL BUILDINGS.

I.—IMPERIAL SERVICES.

23. The expenditure under this head was Rs. 3,20,087, of which Rs. 2,07,151 was for Original Works; Rs. 44,705 for Repairs; Rs. 64,054 for Establishment; and Rs. 4,177 for Tools and Plant.

1.—FORESTS.

24. **Kaira.**—*Additional accommodation in the Bungalow of the Assistant Conservator of Forests, Panch Mahâls, at Godhra.*—Completed during the year at a total outlay of Rs. 3,866, of which Rs. 1,068 were expended during 1883-84. [Outlay shown under Provincial.]

3.—SALT.

25. **Bombay.**—*Road from Augur Rowli Road to the Khokri Augur embankment.*—A metalled road, 920 feet in length, and 16 feet wide, has been constructed. The road is on a raised bank, two feet above high-water spring tides; over a small creek a 20′ culvert has been constructed, and a masonry sluice gate, to admit water into the salt pans, is provided. Completed at a cost of Rs. 4,491.

26. **Thâna.**—*Sir-Kirkee's Office at Belapur.*—This building has been in progress during the year, and Rs. 5,924 have been expended on it. It contains an office room 30′ × 24′, treasury and store-rooms, each 12′ × 11½′, two record-rooms, 24′ × 12′, and 15′ × 10′, and 2 peons' rooms, each 10′ × 10½′.

27. **Ahmedabad.**—*Bungalows, &c., for the Salt Department.*—The following bungalows, &c., were in progress in the Ahmedabad Division during the year:—

A bungalow, with out-houses, for the Assistant Collector, Salt Revenue, at Kharaghoda. The bungalow contains 2 rooms, 20′ × 20′, and one 20′ × 12½′, on each side, with verandah, 10′ wide all round. In rear verandah are 2 bath-rooms, a store-room and dispensekhana. Out-houses consist of cook-room, servants' quarters, coach-house, stable, and syces' quarters. Total outlay, Rs. 13,731, of which Rs. 8,680 were expended in 1883-84.

A bungalow for an Inspector, with out-houses, at Udu. The bungalow contains 3 rooms; the centre is 16′ × 16′, and two side rooms 16′ × 12′ each, with verandah, 9′ all round, and two rooms in the rear verandah, 10½′ × 9′ each, for bath and store-room. The construction is of burnt brick and lime, roof double-tiled on main rooms, and single-tiled on the others. Out-houses consist of one large room, divided by wattle and daub partitions, 8′ feet high, into cook-room, 12′ × 10′, and two servants' rooms, 12′ × 8′ each, one 12′ × 8′ for grooms, and one stable, 12′ × 7′. Estimated cost, Rs. 7,384, of which Rs. 5,508 were expended in 1883-84.

There have also been constructed the following:—A guard-room, 25′ × 14′ × 10′; 4 corner chaukis, 18′ × 12′ × 6½′ each, and 6 intermediate chaukis, 12′ × 12′ × 6½′ each. These chaukis have been erected on the Ran, on wooden platforms 5½′ high, carried on blackwood piles, driven 6 feet into the ground, and resting on stones, imbedded in concrete. The walls and roofs are of open teak frames, covered outside with galvanized corrugated iron, and inside with thick teak planks, the space between is filled with wool; floor of teak planking. Total outlay, Rs. 16,473.

For the Inspectors and Sub-Inspectors of the Northern Frontier Preventive Line, 4 Bungalows with out-houses, similar to the Inspector's bungalow at Udu, have been constructed at Thori Moobarek, Udu, Kudtha, and Singaon, at a total outlay of Rs. 25,921.

Five bungalows, with out-houses, have also been constructed for Sub-Inspectors at Goria, Gakhumtar, Assara, Jajum, and Jhinjuvâda, for a total outlay of Rs. 21,269. They consist of 2 rooms, each 12′ × 12′, with 9′ verandah all round; two rooms, 7½′ × 7½′, in rear verandah for bath and stores; out-houses similar to those for the bungalow at Udu.

Kárkuns' quarters have also been constructed at Khárághoda, and consist of 8 rooms, 16′ × 12′, 4 on each side of a centre wall, with verandah in front and rear; four small rooms, 7′ 10½″ × 7′ 2¼″ in each verandah, for bathing and cooking. Cisterns are provided outside each bath and cook-room. Construction of burnt brick and lime, and roof single-tiled. Expenditure, Rs. 3,807.

Alterations have been made to the Superintendent's Office at Khárághoda, by adding a room 16′ × 15¾′, and one in the verandah 13′ × 17′, at an outlay of Rs. 2,689.

28. **Kolába.**—A Darogah's office, and lines for 10 Peons, in the Sir-Kárkun's kácheri at Pen were built; and the Sir-Kárkun's kacheri at Revádanda, which was commenced in 1882-83, was completed during the year under report.

29. **Ratnágiri.**—In the Ratnágiri District, the Salt Custom House at Shiroda was undertaken during the year, the foundations and plinths of which were completed by the 31st of March.

30. **Kánara.**—In the Kánara District, a Sir-Kárkun's office was built at Sanikatta.

31. **Shikárpur.**—A warehouse, with office and servants' quarters attached, was erected at Sukkur for the Salt Department. The warehouse consists of two rooms, 60′ × 20′, and is designed to store 20,000 maunds of salt. Total outlay, Rs. 9,047, of which Rs. 3,543 were spent during the year.

5.—MINT AND CURRENCY.

32. **Bombay.**—*Quarters for the Warden of Her Majesty's Mint.*—These quarters, with an out-house, estimated to cost Rs. 12,238, have been in progress during the year, in which the outlay has been Rs. 7,267.

33. *Strengthening the Currency office strong-room and the coin vaults in the Arsenal.*—The doors and windows of the Currency office strong room have been strengthened at a total outlay of Rs. 2,476, of which Rs. 335 were expended in 1883-84.

6.—POST OFFICES.

34. **Bombay.**—*Branch Post Office at Colába.*—This building, 26′ × 43½′ outside, has a front verandah, 26′ × 8′; post office, 24′ × 13′; two rooms for Deputy Post Master, one 12′ × 12′, and the other 12′ × 10¼′; cookhouse, 8′ × 8′; servants' room, 9′ × 8′, and bath-room and privy, 8′ × 5′. It is built of brick nogging, and roofed with Mangalore tiles on teak frames and planking. The office room is provided with teak counters, 2 bookcases, 2 sets of pigeon holes, and a letter-box. Completed for Rs. 4,958.

7.—TELEGRAPH.

35. **Bombay.**—*Storeyard for the Government Telegraph Department at Wádi Bundar.*—About seven acres of ground have been raised and coated with 6″ of moorum: two godowns, each 200′ long and 29½′ wide, and a building, 100′ × 30′, to contain an office, stationery godown, and testing room, &c., have been erected; three iron sheds, and a tiled workshed, have been removed from the former storeyard at Bori Bundar, and re-erected on the new site at Wadi Bandar; a latrine and 2 urinals have also been erected, and roads constructed throughout the yard; water supplied by means of pipes, and Persian wheels attached to two wells in the yard. The work has been completed at a total outlay of Rs. 66,524, of which Rs. 43,898 were expended in the past year.

36. *Constructing a 3rd store shed for the Telegraph Department at Wádi Bandar.*—This shed is similar to those above described, viz., 200′ long and 29½′ wide. The foundations have been laid and plinths raised. Estimate, Rs. 18,381; expenditure during 1883-84, Rs. 5,146.

37. **Karáchi.**—*Coal shed and Pier for the Indo-European Telegraph Department.*—A coal shed and pier were designed for the Indo-European Telegraph Department at Manora, at a cost of Rs. 13,392, of which Rs. 4,999 were expended, up to the 31st March last, on the pier and reclamation of ground for the shed.

II.—PROVINCIAL SERVICES.

38. The expenditure from Provincial and Local Funds and Contributions under this head was Rs. 19,28,121, of which Rs. 10,38,012 was for Original Works: Rs. 4,26,993 for Repairs; Rs. 4,45,267 for Establishment; and Rs. 17,849 for Tools and Plant.

12.—ADMINISTRATION.

39. A large number of buildings falling under this head of classification were in progress during the year. New Mámlatdár's Kucheris were completed at Khed in Ratnágiri and at Pandharpur in Sholápur, and were in progress at Thásra in Kaira, at Muddebihál in Kaládgi (nearly completed), at Islámpur in Sátára, and at Sholápur: a Mukhtyárkar's Kacheri at Mutli on the Guni, in Hyderabad (Sind) was well advanced, and one at Shadádpur in Shikárpur (Sind) was commenced. Additional accommodation for records was provided,

or was in course of provision, in connection with the Mámlatdárs' kacheris at Dholka in Ahmedabad, Navalgund in Dhárwár, Vaduj and Patan in Sátára, Khadkala and Khed in Poona, and Amalner in Khándesh. Certain additions and alterations to the Mámlatdár's kacheri at Sheygaon in Ahmednagar were carried out at a cost of Rs. 2,573. The Faujdar's office at Karáchi was altered and enlarged at a cost of Rs. 4,914, to afford accommodation for the Mukhtyárkar's, as well as the Faujdar's office. The Mukhtyárkar's office has hitherto been located in a rented bungalow. A record-room for the head quarter records at Alibág, Kolába, was completed, and one at Dhulia, in Khándesh, nearly so.

40. At Bárámati, in the Poona districts, stabling for 3 stallions was provided at a cost Rs. 2,912, including grooms' quarters.

41. Quarters for table servants at Government House, Parel, were in progress, and some additions and improvements to the Body Guard lines there were carried out. The servants' quarters at Bella Vista, Mahábaleshvar, commenced in 1881-82, were completed, and 3 new reservoirs for water-supply were built, besides a block of 4 bed-rooms for the Staff of His Excellency the Governor. At Ganesh Khind improvements were effected to the Native Aide-de-Camp's and the Band Master's quarters, and also to the servants' lines.

42. New quarters and stables are being built for the Body Guard, Baroda Residency. The quarters provide accommodation for 12 privates and one non-commissioned officer, in 14 rooms, each $10' \times 10\frac{1}{2}'$. There are two stables, with 14 stalls (7 in each) separated by a central passage of 6 feet. Foundations of quarters excavated and filled in. The stables are completed. Estimate, Rs. 4,942.

43. New offices for the Residency, Baroda, comprising a main office, treasury, tent-store, lock-up, and shelter for guard, dispensary, and doctor's quarters, and latrines, were commenced. The main office has 9 rooms, English office, record room, offices of the Assistants, European and Native, library, Thagi office, and vernacular record room. There are two wings, the right forming vernacular office, the left the treasury office. Two water rooms are provided, and the whole block is surrounded with a verandah, 10 feet clear in front, and 7 feet in rear. This work was commenced in December 1883, and some progress has been made on it, the expenditure to the close of the year being Rs. 9,999, out of an estimated cost of Rs. 39,979.

44. A bungalow for the Assistant Collector at Godhra in the Panch Mahals, estimated to cost Rs. 7,996, was in progress. At Pen, in Kolába, quarters for the Abkári inspector were completed: and the Collector's bungalow at Alibág was nearly finished. An upper-storied bungalow for the Superintendent of the Bhadgaon Model Farm, Khándesh, was built for Rs. 5,316.

45. Considerable progress was made with the work of adapting certain of the ancient buildings at Bijápur to fit them as offices and residences, to admit of the transfer of the head quarters of what is at present known as the Kaládgi Collectorate, from Kaládgi to Bijápur. This scheme was first brought forward in 1875, but was not actually commenced until 1881. It was determined upon as an alternative to expending large sums upon new public buildings, which were absolutely necessary at the present head quarters of the collectorate, and commended itself more especially by reason of the central situation of Bijápur, and the fact that the ancient buildings in Bijápur were admirably fitted for adaptation, at a moderate outlay, for the purpose, and, further, that the occupation of the place would ensure the preservation of its many fine public buildings and monuments from decay. The scheme is treated as a whole, and includes the outlay necessary for public offices of all departments, with Jail and Police Lines, and residences for Civil Officers. Great care has been taken, in carrying out the alterations, to preserve the characteristics and architectural features of the buildings dealt with. Concrete arches have been very successfully adopted for the upper floors and roofs. The buildings will, it is anticipated, be ready for occupation by the end of 1884-85. On the transfer of the head quarters, the collectorate is to be called the Bijápur District. The estimated cost of the scheme is Rs. 3,89,449, of which Rs. 2,02,759 had been expended to the end of 1883-84.

46. Offices for 3 Assistant Collectors and their establishments are being constructed at Karáchi under one roof, in a single-storied building, close to the Collector's kacheri. The walls, which are of squared Karáchi stone, are nearly completed, and materials for the terraced roof are being collected. The estimated cost is Rs. 15,874.

47. The English office and record-room at the Residency, Jacobabad, have been improved at a cost of Rs. 4,897. The work consisted of interior improvements, altering the accommodation for the offices, and re-roofing the whole building.

48. The barracks used as a Civil Hospital at Sukkur, were converted into a residence, treasury, and office for the Collector of Shikárpur, whose head quarters have been transferred from Shikárpur to Sukkur. The old Collector's kacheri at Shikárpur, thus vacated, was made over for use as a Subordinate Judge's Court. Shikárpur remains, as before, the Judicial head quarter of the district, and the Collector's residence there is to be used by the District Judge; the bungalow now occupied by the Judge being made available for the Assistant Collector, whose head quarters were formerly at Sukkur. The alterations to the buildings at Sukkur cost Rs. 3,031.

49. **Na'sik.**—*New Distillery building at Násik.*—The construction of this building, with the subsidiary works, was completed in 1882-83, and the amount paid to the contractor, Rs. 24,923, has been accounted for in the year under report.

14.—LAW AND JUSTICE.

50. Subordinate Judges' Courts were in progress at Bassein in Thána, Ankleshvar in Broach, Hubli in Dhárwár, Bársi in Sholápur, and Sátána in Násik.

51. At Bassein a bungalow, which came into the possession of Government in satisfaction of some demands in the Revenue Department, has been adapted as a Court-house, at an estimated cost of Rs. 3,871.

52. The new Court-houses at Anklesvar, Bársi, and Sátána were completed, and that at Hubli nearly so.

53. At Ratnágiri a new record room, 50′ × 28′, has been built for the District Court.

54. Last year's heavy floods in the Tápti washed away the old wall and bastions, with the Assistant Judge's Court-house at Surat, the total area lost being 13,500 feet. This square of ground stood out in the stream, the bank above or up stream having been eroded until a perfect dam was left standing out 75 feet into the heaviest run of the river. The run of the river is greatly eased by the mass that has been washed away; to protect it from further erosion, the bank has been pitched with stone. Earth-work for the bank behind the pitching is in progress; old masonry blocks have been pulled down and cleared away, the bank prepared for pitching, and material collected. Estimate, Rs. 10,680.

15.—ECCLESIASTICAL.

55. Additions, comprising a new vestry and a reading-room, were made to the Roman Catholic Chapel at Ahmedabad, at a cost of Rs. 4,606.

56. A new Church at Parel, Bombay, for the accommodation of the Railway employés, Government servants, and other residents of the neighbourhood, was commenced during the year. The design is in the perpendicular Gothic style, and the plan consists of a nave, 58 feet long and 34 feet wide, a chancel 27½′ × 22½′, a vestry 15′ × 12′, and an organ chamber 15′ × 11′. The nave and chancel are 20 feet high, and the vestry and organ chamber 15 feet to eaves. There is an entrance porch 30′ × 10′. The number of sittings provided is 200. During the year the ground has been reclaimed by filling, the foundations laid, and plinth raised. The estimated cost is Rs. 37,483, and is to be met by contributions from the two Railway Companies, and public subscriptions, aided by a Government grant of Rs. 7,000.

57. A new church in the City of Poona, for the Society of St. John the Evangelist, was commenced. The design is by Mr. J. Adams, Architectural Executive Engineer and Surveyor, Bombay, and is in the primitive form of the Italian Basilica style both as to plan and elevation. The superstructure, which is of brick, is raised to a height of 10 feet, and the stone bases, shafts, and capitals of the Ionic columns are three-fourths completed. The body of the church (nave and chancel) measures 91′ in length, by 30′ 8″ in breadth, including the space occupied by the nave pillars: the two aisles are each 91 feet in length and 10 feet in breadth, and the altar apse is a rectangle, 18ft. in width, and 6′ 4″ in length, with a semicircular front. No sittings are provided for, but the available space is 3,599 sq. ft. The estimated cost is Rs. 38,067, which has been met entirely from the funds of the Mission.

58. The new cemetery at Wanowri, Poona, covering an area of nearly 13 acres, was, as regards enclosure wall and approach, completed in March 1883, at a cost of Rs. 19,530, but it could not be utilized as a burial-ground until it had been laid out for the different denominations, and provided with rods, &c. These rods, &c., are now under construction. The cemetery has been divided as follows:—Church of England, one-half; Roman Catholics, one-third; Presbyterians, one-sixth. Pits to receive young trees have been dug, at 20 feet apart, along the sides of all the roads in the cemetery. An old well has been lined with stone and lime masonry, and two new wells have been sunk; all three wells are to be provided with Persian wheels for drawing water. The estimated cost of the additional work is Rs. 9,293.

16.—JAILS.

59. The conversion of the lock-up at Godhra, in the Panch Mahál Collectorate, into a fourth class District Jail, was nearly completed, and the buildings were occupied. The jail provides for the accommodation of 76 prisoners; besides the necessary subsidiary buildings, the project includes a residence for the Superintendent of Police, whose present residence, being in the vicinity of the jail and dispensary, is to be made over to the Civil Surgeon, and additions to the dispensary, which include a ward for civil patients and out-houses for hospital servants. The estimated cost of the works is Rs. 24,937.

60. A piece of waste ground adjoining the south side of the House of Correction, Bombay, was reclaimed, and is hereafter to be walled in, to improve the sanitary condition of the immediate surroundings of the jail.

61. The jail at Sátára has been reported as insecure, and a new jail is shortly to be built, but during the year under report, it has been found necessary to rebuild portions of the walls of the barracks for female convicts, and some of the enclosure walls.

17.—POLICE.

62. Lines for the accommodation of the Police were in progress at Broach, Kaira, Godhra in the Kaira Districts, Ahmedabad, Yellápur in Kánara, Násik, and Karáchi.

63. The lines at Broach are for the accommodation of 196 men, and the project, complete with stables, guard-room, armoury, and store-room and latrines, is estimated to cost Rs. 63,739. The roofs are to be of Mangalore tiles, with ridge ventilators. The work was commenced during the year, and two blocks, each containing 28 rooms, were completed.

64. At Kaira the lines comprise 6 blocks of 20 rooms each; the roofs of main buildings are of concrete arches, and the verandahs are single-tiled; two blocks were completed, two were ready for roofing, and the remaining two were in progress. At Godhra, one block, to accommodate 26 men, was under construction, it being necessary to increase the Police force there in consequence of the transfer of the District Jail from Dohad to Godhra, *vide* para. 59 *ante*. The block is estimated to cost Rs. 4,820.

65. The lines at Ahmedabad are for the accommodation of the mounted police at headquarters. The lines are in two blocks for 40 men each, and are estimated to cost Rs. 19,963. One block has been completed, with the exception of the roof, and the foundations of the second block were in progress.

Yellápur is the head-quarter station of the táluka, and accommodation has to be afforded for 30 men. The lines are in two blocks, and are estimated to cost Rs. 6,563. One of the blocks has been completed.

66. New lines for the Police head-quarters at Násik were commenced at the end of the year; the site was purchased, and materials for the buildings collected. The scheme is for two blocks for unmounted men, 8 head constables and 116 constables, and one block for mounted police, 3 head constables, and 12 constables. A space, 90′ × 10′, is to be enclosed on three sides by a wall, 6 ft. high, for a stable for 15 horses. Quarter-guard, store-room, school-room, quarters and offices for the Chief Constables, a well, and two latrines are provided. The estimated cost is Rs. 43,996.

67. The pendals for the Police at Karáchi being in a very unsafe condition, and past repair, a project, for eight new pendals, to accommodate 200 men, at a cost of Rs. 40,044, was prepared in 1878. Each block or pendal accommodates 24 men and two native officers. Five blocks were completed in 1882-83, and the remaining 3 were finished during the year.

68. The Police head-quarter lines at Belgaum, commenced in 1881-82, were nearly completed.

Police lines for 14 men at Limdi, and 10 men at Thalla, in the Kaira Districts, and outposts at 5 stations, with rooms for from two to four men, in the Kaládgi District, were completed.

69. An office for the District Superintendent of Police, Poona, was under construction. It consists of two rooms, each 16′ × 16′, one for an office, and the other for records.

18.—EDUCATIONAL.

70. At the Presidency, to meet the enlarged requirements of the University in science, the construction of a Laboratory for the Elphinstone College was undertaken, and about half completed during the year. It provides for a student's laboratory, workshop, quantitative and physical rooms, and is estimated to cost to Rs. 18,739.

71. The clock and chiming machinery for the Rájábai Clock Tower to the University Library arrived in January 1883, and was erected during the year.—The east wing of the Cathedral High School was in progress, and was completed to the level of the top of the ground floor. The building was described in the report for 1878-79, and the west wing and central feature were completed and made over for occupation in 1881-82. The estimated cost of the entire building is Rs. 1,98,646, exclusive of the value of the site. The outlay has been met partly by contributions, and partly by a grant-in-aid from Educational funds.

72. The addition of an upper story to the David Sassoon Industrial and Reformatory Institution was in progress, and the upper story over the workshop was completed. The funds are provided by the Committee. When completed the alterations will secure well ventilated and healthy accommodation for 270 boys; the present accommodation being for 210 boys, of whom 130 are on the ground floor, which is quite unsuited on sanitary grounds. The alterations are estimated to cost Rs. 17,655.

73. The enlargement of the school buildings of St. John's Anglo-Portuguese School at Lower Máhim was undertaken during the year, a moiety of the cost being provided from Educational funds. The new building is of permanent construction, and is designed to provide 5 class rooms, a teacher's room, a dressing and bath-room on the ground floor, and a lecture hall, 120′ × 25′, a teacher's room, dressing and bath-room on the first floor. The total cost is estimated at Rs. 31,012.—Out-houses, estimated to cost Rs. 2,621, were undertaken for the Alexandra Native Girls' English Institution on the Esplanade.

74. The new General Library and Reading-room at Thána was in progress. The cost (Rs. 3,989) is to be met partly by private contributions, and partly by Municipal and Educational Provincial funds.

75. A new building for the High School at Broach was commenced on designs by Mr. J. Adams. The cost is estimated at Rs. 36,025, of which Rs. 7,850 have been contributed by the sons of Khán Bahádur Pestonji Sorábji, Rs. 5,000 by the Municipality, Rs. 13,991 by the Government, and the balance is to be realized partly from the sale of the old building and partly by public subscriptions. The school is to accommodate 300 boys. During the year the foundations and plinth were completed, doors put up, and superstructure raised 2′ throughout.

76. A building for a Tálukdári School at Wajiria, in Rewa Kántha, was commenced, the funds being provided from the Wajiria Estate, which is under direct Government management. The accommodation provided is a class-room, 34′ × 16′, a teacher's room, ten rooms for boys, the usual out-houses, and quarters for a resident master. The cost is estimated at Rs. 16,000.

77. School-houses were in progress from Local Funds at Borsad (80 girls), in Kaira, and Dohad (one for 75 girls, and one for 200 boys) in the Panch Mahals; Sindgi and Hippargi in Kaládgi; Mahád (250 boys) in Kolába; Sarkhej (150 boys) in Ahmedabad; Vaduz (125 boys), and Akulkhop (100 boys) in Sátára; and Amalner (150 boys), Faizpur (350 boys), and Bhusával (250 boys), in Khándesh.

78. The enlargement and improvement of the Government High School building at Belgaum was commenced during the year, at an estimated cost of Rs. 12,912, of which one-half was raised by private contribution, and one-half is to be provided from Provincial funds.

79. At Sátára certain repairs and alterations to the old palace were undertaken and completed, for the accommodation of the Anglo-Vernacular and Female Schools. The centre portion of the building within the court-yard is already used by the High School. Portions of the building which were in a dilapidated state were removed, and those portions which are worth retaining were renewed. The alterations for the accommodation of the schools cost Rs. 6,526, which was met from the Educational grant, and the removal of dilapidated portions and renewal of others, which cost Rs. 6,526, was provided for from the Provincial Public Works grant.

80. Increased accommodation for resident students in the Deccan College having been found absolutely necessary, additions to the wings were undertaken on an estimate amounting to Rs. 33,983. This will provide for 64 more scholars, for whom also detached dining-rooms and kitchen are being built. The accommodation already existing is for 62 pupils only.

81. The building for St. Mary's School for Girls at Poona was enlarged during the year 1882-83, by an extension northwards, but the increasing requirements of the school necessitate the further additions of a large dining-room, another bed-room, and some class-rooms, which were under construction on the south end of the school-house. The estimated cost is Rs. 5,023, of which one-half is contributed as a grant-in-aid by Government.

19.—MEDICAL.

82. In Bombay the work of renewing the roof of the European General Hospital was completed. Quarters for two women students (soldiers' wives) were built for the Grant Medical College. A tank known as Dick's tank, in front of the Jamsetjee Jijibhoy Hospital, which was a source of nuisance to the neighbourhood, and prejudiced the sanitary state of the hospital, was filled in, and a fountain erected on its site, the ground being laid out into turfed plots and foot-paths, and fenced off from the rest of the Hospital grounds. This improvement was carried out with the consent of Sir Jamsetjee Jijibhoy, Bart., whose ancestors re-built the tank in 1850. The ground and fountain have since been made over to the Municipality on behalf of the public. Two quarry holes behind the House Surgeon's quarters at the same hospital, were similarly filled up to the level of the adjoining ground.

83. A new hospital, to be called the Pestonji Hormasji Cama Hospital, for women and children, the funds for which have been solely provided by Mr. Pestonjee Hormusjee Cama, estimated to cost Rs. 1,64,311, is to be constructed on the north side of the Cruickshank Road, on the Esplanade. The design provides for a main building for 50 in-door patients, dispensary and waiting-room for out-door patients, delivery ward, operating room, matrons' quarters, Surgeon's office, &c., and quarters for Resident Surgeon or Apothecary; a detached building for infectious fever cases; a disinfecting room; a dead-house; servants' quarters; cook-rooms and store-rooms, &c.; latrines for servants; bathing-places for servants. The hospital is to be for women and children of all classes and sections of the community, one ward being set apart for Parsee females.

The foundation stone of this building was laid with great ceremony, by His Royal Highness the Duke of Connaught, during his visit to Bombay in November 1883, in the presence of His Excellency the Governor, and a very large assemblage of the inhabitants of Bombay; shortly after, the foundations of the main building were put in hand.

84. Dispensaries were in progress, from Local Funds, at Umbargaon and Bhiwndi in Thána, Khairgaum in Surat, Anklesvar and Vágra in Broach, Mahudha in Kaira, Haveri in Dhárwár, Satána in Násik, and Schwan in the Karáchi Collectorate. Those at Khairgaum, Anklesvar, Vágra, and Mahudha were completed: those at Umbargaon, Bhiwndi and Haveri nearly so: and that at Satána was commenced just before the close of the year. The dispensary at Schwan is estimated to cost Rs. 6,367, of which Rs. 2,000 were contributed by Ráo Bahádur Parunal Khubchand, in consideration of which the dispensary is to bear his name; Rs. 600 were contributed, in addition, in small sums from zamindárs and others. The main building only has as yet been built: it comprises male and female wards, receiving room, private room, and surgery.

85. At Kambar, in the Shikárpur Collectorate, the old travellers' bungalow was converted into Hospital Assistants' quarters, and out-houses were built, at the cost of Local Funds.

86. The project for a central Konkan Lunatic Asylum at Ratnágiri, which has been under consideration for some years, was commenced. The buildings, which are to accommodate 96 patients, are of permanent construction, which is necessary in Ratnágiri, on account of the heavy rainfall, and are generally in accordance with the standard plans. The asylum is to occupy an area of 7 acres of ground. The estimated cost of the land and buildings is Rs. 92,345. It will provide for all lunatics from the Northern and Southern Konkan, Goa, and Kánara, and relieve the overcrowding at the Colába Asylum in Bombay. Hereafter it is proposed to build an Asylum at Poona, which will provide for patients in the Deccan, and the necessity for building a new Central Asylum, at a much higher cost, in Bombay itself, will be thus avoided. The site for the asylum was acquired and paid for in 1882-83, and in the year under report, materials were collected, and preparation made for proceeding with the buildings.

87. A new Civil Hospital at Dapoli, in the Ratnágiri District, was completed during the year: it comprises male and female wards, dispensary, dead-house, store-room, and latrines, and affords room for 12 men and 6 women. The Hospital will serve the wants of a very large area, comprising three tálukas and two petas.

88. A bungalow adjoining the Civil Hospital at Dhárwár was purchased, and adapted as quarters for the medical pupils and store-rooms.

20.—MISCELLANEOUS.

89. The Godowns, &c., for the stores in charge of the Executive Engineer, Presidency were completed during the year at a total outlay of Rs. 34,056, of which Rs. 25,021 were expended in 1883-84.

90. The Government Central Press, Bombay, is at present accommodated in the old Secretariat in the Fort, a building that is quite unsuited to the present requirements of the press. A committee was assembled in 1881 to consider the subject, and, subsequently, alternative estimates for altering and enlarging the premises, and building an entirely new press, were prepared. After much enquiry, it was determined to construct a new building in the immediate vicinity of the New Secretariat, and the work was commenced during the year. The new building has been designed by Khán Bahádur Muncherjee Cowasjee Murzban, Assoc. Inst. C. E., Executive Engineer at the Presidency. It is in the Gothic style, and forms 3 sides of a rectangle: the side facing the main road is 256 feet long, and the short side, towards the south, 177 feet long. The interior width of the building in front and rear is 44 feet, and that on the south side is 30½ feet. The building consists of a ground and first floor, with the exception of the south wing, the end towers, and the central feature; the south wing and the towers being one story higher, and the central feature two stories higher. The height of the ground floor is 20 feet, that of the first floor 18 feet, of the second 14 to 17 feet, and of the third floor, in the centre feature, 19 feet. On the ground floor, the east or roadside wing, is for typographic and lithographic presses and machines, the south wing is for the engine room, dammer room and unprinted paper warehouse, and the west wing for stock forms and printed paper warehouse. On the first floor, the east wing is for compositors, the centre portion for the Superintendent's office and his clerks, the south wing for drying paper, foundry, and compositors' rooms. The west wing is to be occupied by readers and book-binders, and a portion is to be set apart for a store-room and for confidential printing. The second floor is to be used principally for quarters for the Superintendent and his Deputy, the former being located in the centre feature, and the latter in a portion of the south wing. The rest of the south wing is for depositing waste paper, carpenters' workshop, and roller makers' room. The third floor in the centre feature is for Superintendent's kitchen, &c. In front of the east wing there is an open arcade, 12 feet wide, for the public, on the ground floor. An open verandah, 6 feet wide, is provided in the inner quadrangle for access to the different parts of the building, and to afford protection from sun and rain. On the north side of the open quadrangle, latrines are to be constructed, in a block, 22′ × 16′ outside, on the wet or water-carriage system. Two latrines, one attached to the Superintendent's quarters, and the other to the Deputy Superintendent's quarters, will be provided. There is a staircase 7′ wide, in the centre of the building, and six minor ones. All are to be of wood, except that separating the engine room from the east portion of the building, which is of stone. The building containing engine room, drying room, dammer room, &c., is disconnected with the east of the buildings by open courts, 10′ in width. The building is to be faced with Kurla

stone; tanks for water and other water fittings are to be provided. Foundations and plinths of the building have been completed, and the walls raised to an average height of 9 feet. Estimated cost, Rs. 4,18,598: expenditure in 1883-84, Rs. 79,732.

91. Pending the completion of the new press, and to provide for immediate requirements, a semi-permanent shed, with two rooms, 84′ × 24′, and 30′ × 24′ inside, for presses and compositors, was built in the compound of the Old Secretariat, at a cost of Rs. 5,041.

92. An experimental block of warehouses in the neighbourhood of the Nadiád Railway Station, for the accommodation of the traffic arriving by the railway, 107½ feet by 27½ feet, with arched concrete roofing, was completed to springing. The estimated cost is Rs. 9,068, which is to be met from Local Funds.

93. The draftsmen's office in the Photozincographic building at Poona, which is 45½′ long, and 14′ wide, has been converted into a store-room, and the old store-room adapted as a room for a steam press, to which an engine-room, coal-store, &c., have been added. Estimated cost, Rs. 3,123, of which Rs. 492 were expended in 1883-84.

II.—COMMUNICATIONS.

1.—ROADS.

94. The total outlay on Communications was Rs. 33,63,063, of which Rs. 11,03,197 was spent on Original Works: Rs. 16,02,592 on Repairs; Rs. 6,25,661 on Establishment; and Rs. 31,613 on Tools and Plant.

95. A Map in three sheets is attached to this Report, exhibiting some of the more important lines of road in progress during the year in the Deccan. The scale is too small to admit of the whole of the roads being shown, but, with future reports, it is proposed to publish more complete maps. The principal works under execution were as follows:—

96. **Thána.**—The arrangements with the Jowhar State for the construction of a road from Dáhánu station on the B. B. & C. I. Railway to Jowhar, to be hereafter extended eastward to connect with the road system of the Násik districts, were described in the report for 1882-83. The first section of the line from Dáhánu to Jowhar, from Dáhánu to Talaoli, is to be constructed by Government. Plans and estimates for a length of 13 miles of this portion, extending from Dáhánu to Charoti, have been sanctioned, and the work was in progress during the year. The estimate for this length is Rs. 1,29,492, and includes the cost of a bridged and metalled road. The instructions are that the metalling and kerbing, and perhaps some of the items of masonry work, should in the first instance, be deferred, and work restricted to rendering the whole road passable in the fair weather, as only limited grants can be sanctioned for expenditure annually. Five miles of earthwork and murumming, and two small culverts, have been completed, and a branch road, 1 mile long, to Sawta Bandar is in progress.

The line of road to Jowhar is shown on the map. The extension above ghát to join the Bombay and Agra road at the village of Padli, with a branch line to the táluka town of Mokhuda, have been sanctioned, but funds are not at present available for the works.

97. The first section of a line of road to connect the táluka towns of Bhiwndi (on the Bombay and Agra road) and Váda was in progress during the year. The line is shown on the map attached. The first section, extending from Bhiwndi to the Tansa River, is 13 miles in length, the total length being 26 miles. The design is for an 18-foot road, metalled for a width of 16 feet; it is to be partially drained, all large streams being provided for by easy slopes with road dams in the beds. The cost of the first section is estimated at Rs. 92,956, and is to be met from Local Funds. About 8 miles of earthwork, with drains and culverts, have been completed, and metal and muram collected.

98. The metalling of the road connecting the táluka town of Máhúr with the Pálghad Railway Station, on the B. B. & C. I. Railway, was in progress. The traffic is heavy during the monsoon as well as the dry weather; the total length is five miles, of which the first two are to be metalled for a width of 12 feet only, and on the remaining three miles, which runs mostly through black soil, the width is to be 16 feet: the full width of the road is 20 feet. The work was begun in 1882-83, and the cost (Rs. 11,143) is being provided from Local Funds.

99. Culverts and drains for minor cross drainage were in progress, from Local Funds, on a road which has been constructed to connect the Pálghad Railway Station with the Chahad Khind road, in the Máhúr táluka, referred to in the last year's report as having been completed.

100. *Kalyán to Málsejghát.*—This road, running through the Murbád Táluka of the Thána Collectorate, a portion of the district described as one where there are absolutely no means of communication between any part of the táluka and any other place, except of the roughest conceivable description, has been in progress from Local Funds for some years. The road up the Málsejghát is at present a bullock track only, but it is intended to construct a regular road connecting the Thána system with those of the Poona and Ahmednagar Collectorates above ghâts, as soon as funds can be made available. The road from Kalyán to the foot of the ghát is 41 miles in length, and is metalled for a length of 8½ miles only between Murbád and Saralgaon (3rd section); elsewhere it has a muram surface, and is

drained, but not bridged. The work has been carried out in sections: it was commenced in 1876-77, and is now complete as far as Kotul, a point in the 4th section about 29 miles from Kalyán. The entire estimated cost of the line is Rs. 2,85,649, and expenditure to the end of the year Rs. 1,82,398, of which Rs. 9,966 were expended during the year.

101. **Surat.**—*Road from Surat to Bárdoli (Local Funds).*—The portion of this road in British territory is 5¼ miles in length: 3 miles were completed in 1882-83, including embanking, bridging, and drains. As the question of constructing a railway along this line is under consideration, the works are partially suspended for the present; gravel and metal, however, have been collected. The portion of the road in British territory, near Bárdoli, has been completed.

102. *Road from Foolpada to Ashwanikumar in Chorási Táluka (Local Funds).*—Completed, with the exception of gravelling. Three masonry dips have been constructed. The total outlay has been Rs. 3,476.

103. *Culverts and Drains on the Road from Olpád to Kudrama (Local Funds).*—On this road one barrel drain, No. 14 of 2½ feet, and bridge No. 13 of 5 spans of 14 feet each, have been completed during the year, at an outlay of Rs. 2,999.

104. *Road from Surat Railway Station to Ashwanikumar (Local Funds).*—This road is about 1½ mile in length. The earth-work is nearly finished, and gravel has been collected. 5 barrel drains, 3 feet each, and one culvert, 4 feet, nearly completed.

105. **Broach.**—*Road from Anklesvar to Borebhatta (Local Funds).*—The road is 3 miles and 250 feet in length, and 22 feet in width. The earth-work and collection of metal has been completed, also one 15′ and one 6′ culvert and three barrel drains. About three-fourths of a mile has been completed with metal. Expenditure in 1883-84, Rs. 20,105.

106. *Fair-weather road from Broach to Dehej (Local Funds).*—The road is 25 miles in length, and has been cleared and marked out by side ditches and completed with banks for a width of 20 feet. The total estimated cost is Rs. 31,037, of which Rs. 9,877 have been expended in 1883-84.

107. **Kaira.**—*Road from the Dákor and Kapadvanj line towards Baad and Modása.*—This is the first section of a scheme of roads for joining Modása and Harsol with the Bombay, Baroda and Central India Railway, and will eventually help to open up a tract of very backward country about Námlaji, Kherwara, Dungarpur, &c. The road will be very useful, and future extensions are likely to add largely to its value. The project includes 11 miles of bridged and metalled road, and 18 miles of cleared road. On the metalled section the earth-work has been nearly completed: the foundations of one bridge, eight spans of 20 feet, one bridge, four spans of 20 feet, and one bridge, two similar spans, have been completed, and the foundations of the other bridges will, it is hoped, be finished before the monsoon of 1884. The superstructure of the three bridges, referred to, is in progress, and a great portion of the stone metal is ready. The cleared sections have been nearly completed, and are already used by the traffic. The total outlay on this road has been Rs. 46,979, of which Rs. 22,938 were expended in 1883-84.

108. *Metalling the Road from Nadiád to Mahudha (Local Funds).*—This is a portion of the road from Nadiád to Kapadvanj. The estimate provided for metalling 5 miles with broken stone and 5 miles with kunker, for a width of 12 feet. Completed at an outlay of Rs. 37,297, of which Rs. 1,305 were spent in 1883-84.

109. *Metalled Road from A'nand to Pitlad, British Portion (Local Funds.).*—The total length of this road is 12¼ miles, but only 3½ miles are within British limits. The British section is nearly complete, and materials are available to finish it: but the Baroda authorities, some years ago, suspended work on their portion, and until they are willing to complete it, it is useless to push on further with the portion in British territory, and further progress is stopped. The Baroda Government have proposed to construct a railway between A'nand and Pitlad, and this project is now under consideration. The total expenditure has been Rs. 19,260, of which Rs. 74 only have been expended in the past year.

110. *Metalling with stone a portion of the Vánad and Borsad Road (Local Funds).*—The estimate provides for metalling with stone (12 feet in width) 6 miles of the Borsad road, and the work has been completed. The other six miles of the road have already been similarly treated, and the whole road is now covered with a layer of stone. Completed for Rs. 13,632, of which Rs. 2,341 were expended in 1883-84.

111. *Road from Bárejri Railway Station to Naika (Local Funds).*—This is a banked, bridged, drained, and kunker-metalled road, 14 miles in length, and 20 feet in width. An iron superstructure to the Lúli Bridge (44 feet span) has been completed, and the bridge opened to traffic. All the earth-work and masonry works have been already finished, a distance of 3 miles has been metalled with kunker, and nearly all the kunker metal is ready for completing the road. The total outlay on the two sections of the road in the Kaira and Ahmedabad Collectorates has been Rs. 74,769, of which Rs. 20,159 have been expended in 1883-84.

112. *Metalling portions of Roads in the Kaira Collectorate (Local Funds).*—About 1 mile of metal has been laid and consolidated, and the metal for the remaining 3¼ miles collected. Expenditure in 1883-84, Rs. 6,251.

113. *Metalling portions of Roads near Mehmadabad and Kaira (Local Funds).*—It is proposed to give a layer of metal, three inches thick, for a width of 12 feet over portions (aggregating 3¼ miles) of the kunker road referred to, where the traffic is heavy, and requires a stone surface. The metal has been collected. Expenditure in 1883-84, Rs. 7,477.

114. **Panch Mahá'ls**—*Metalling the Road at Godhra joining the Godhra and Dohad Road (Local Funds).*—This work has been completed for Rs. 4,533, of which Rs. 236 were expended in 1883-84.

115. *Road from Railway Station at Godhra to Kálol Road (Local Funds).*—This is a short length (2 miles) of road, and the main work is a bridge of 7 spans of 20 feet each over the Godhra River. The bridge and all other works have been completed, and most of the metal has been collected. Expenditure in 1883-84, Rs. 7,324.

116. *Bridges and Drains on Road from Kálol to Champáner vid Hiilol (Local Funds).*—One bridge of 2 spans of 20 feet each (iron superstructure), and a number of smaller bridges and culverts have been completed. Only one small bridge is at present unfinished. Total outlay, Rs. 13,545, of which Rs. 4,866 were expended in 1883-84.

117. *Bridges and Drains on road from Godhra to Shera (Local Funds).*—This is a portion (14 miles in length) of the road from Godhra to Lúnávada. At present it is a cleared line, but it is proposed to provide bridges and drains. Earth-work in approaches, &c., nearly completed, materials prepared, and foundations in progress. Expenditure in 1883-84, Rs. 8,388.

118. *Metalling main road in Town of Godhra (Contribution).*—This work has been completed at a total outlay of Rs. 4,693, of which Rs. 1,079 were expended in 1883-84.

119. **Ahmedabad.**—*Metalled road between Dhandhuka and Rámpur Railway Station (Local Funds).*—This road, commenced in 1881-82, is to be a metalled road, 18 miles in length, to connect Dhandhuka with Rámpur, on the Bhávnagar-Gondal Railway. The waterways on the road consist of 8 paved dips, 3 culverts, and 22 slab drains. The line of road runs almost parallel to and about ½ mile from the river Bhadur, and passes by the villages of Kotda, Gunjar, Moraseya, Wagud, Patna, and Nagnesh. The width of the road is 22 feet, and it will receive a layer of kunker or metal 4" thick, consolidated by rolling. The drains, culverts, dips and earth-work have been completed, and the collection of kunker, and its consolidation on some portions of the road, is finished. Total outlay, Rs. 62,149, of which Rs. 28,715 were expended in 1883-84.

120. **Kha'ndesh.**—*Dhulia and Chálisgaon Road.*—The work of metalling 12 miles of the Dhulia and Chálisgaon road is still in progress; metal has been laid and consolidated on 5 of the miles, and collected for about 2 miles more. Estimated cost, Rs. 44,881: total expenditure, Rs. 28,979.

121. *Panjar Causeway at Nav.*—This work is situated on the Dhulia and Surat Road, and is still in progress, owing to want of labour to complete it this year. Total expenditure, Rs. 16,060.

122. *Dhulia and Pimpalner Road (Local Funds.)*—The work done during the year to the road from Sukri to Pimpalner consists of road dams, muram, ballast, embankment, cutting, excavating gutters, curbing of dry stones, and mile stones. The embankments have been completed to within a short distance of Pimpalner, but the masonry works are delayed owing to a scarcity of skilled labour.

123. *Jalgaon to Dharangaon, 2nd Section (Local Funds.)*—The second section of the road from Jalgaon to Dharangaon is nearly completed. The works done during the year consisted of embankments, cutting in earth, muram including rolling, &c., masonry side gutters, kerb-stones, mile-stones, slab drains, and culverts.

124. *Road from Chálisgaon to the foot of the Outram Ghát (Local Funds.)*—The road from Chálisgaon to the foot of the Outram Ghát is in progress, and though sanction was received late, labour being available, the work was pushed on, and will be in such a forward state, that traffic will be allowed to pass over the worst portions during the rains; hitherto all traffic was stopped on this road as soon as the rains set in. Expenditure, Rs. 10,152.

125. *Road from Shiháda to Dondaicha (Local Funds.)*—Owing to the scarcity of labour in this district, little could be done to the road from Shiháda to Dondaicha, till labour could be imported in the cold weather. The expenditure of Rs. 4,880 incurred has been entirely for earthwork. This road crosses the Tapti valley, where it is impossible to keep unskilled labour.

126. *Road from Songír to Nandurbár, 3rd Section from Dondaicha to Randla (Local Funds).*—This work has been in progress during the year, and Rs. 11,591 were expended on it out of the total allotment of Rs. 19,000, which could not be more fully utilised on account of the scarcity of labour principally.

127. **Na'sik.**—*Nándshi Ghát Road.*—In progress. The total length of the road is nearly 4 miles, and its breadth 16 feet. All the cuttings and earth embankments, dry retaining walls in miles 1 and 2, and 2 culverts of 6 feet span each, and one of 8 feet, have been completed in the year under report. A large quantity of muram is collected, and with kerb and paving stones, has been stacked at road sides. The road will be completed in the monsoon of 1884-85. Estimated cost, Rs. 27,532; total expenditure, Rs. 20,981.

128. *Násik, Dindori, and Kalvan Road (Local Funds).*—The 3rd section, between miles 24 and 32, which was in hand in 1882-83, has been completed and opened for traffic. Work was also commenced on the 4th section, which begins at mile 33. Embankments and cuttings were nearly completed in miles 33, 34, and 35. Eight slab drains, three culverts, and six dry rubble retaining walls have been executed. Expenditure for 1883-84, Rs. 14,883.

129. *Approaches to the Nanashi Ghát Road.*—A cleared track, with side cuttings where necessary, has been made passable for carts from the foot of the Nanashi ghát to Hasteh. Expenditure, Rs. 2,355.

130. **Ahmednagar.**—*Feeder Road from Kopergaon to Signápur.*—Muram and sand have been collected, spread and consolidated. The whole road, including five slab drains, has been completed in every respect for Rs. 11,148.

131. *Feeder Road from Ráháta to Chitali viá Ekrúk.*—More than three-fourths of the required quantity of muram, and the whole of the sand, have been collected. Material was spread over 4½ miles, and the road surface over that portion consolidated. Seven slab drains, varying each in the number of openings, from 1 to 3, and a double 10 feet culvert, have been completed. Total expenditure, Rs. 33,700, of which Rs. 17,742 were expended in 1883-84.

132. *Feeder Road from Loni to Belápur.*—During the year nearly the whole of the masonry work, consisting of slab drains and culverts, was completed up to Loni, a distance of about 14 miles from Belapur station; one culvert near Bábleshwer has been constructed with concrete arches. Muram was carted for the whole length, and was spread over 10 miles up to the junction into the Malegaon road, and consolidated. Total expenditure, Rs. 46,341, of which Rs. 12,415 have been expended in 1883-84.

133. *Feeder Road from Belápur town to Belápur Station.*—All the masonry work of slab drains was completed during the year. The road surface was rolled and consolidated, but as it still requires further consolidation, money will have to be provided for this purpose in the next official year. Total expenditure, Rs. 14,033.

134. *Feeder Road from Belvandi village to Ahmednagar and Dhond Road.*—This year the remaining few slab drains, and a culvert of two openings of 10 feet span each, were constructed, and the road completed in every respect: the items executed during the year being chiefly the muram spreading, and a thorough and satisfactory consolidation of the road surface. Extra work was done owing to the increased length of the road, on account of diversions made near the Railway station and village. Total expenditure, Rs. 16,075, of which Rs. 7,779 were expended in 1883-84.

135. *Vámbori feeder Road.*—During the year this road has been completed in every respect. Total expenditure, Rs. 20,565, of which Rs. 10,522 have been expended in 1883-84.

136. *Feeder Road from Khupuri to Vámbori.*—This is the continuation of the Vámbori feeder road. It is 6·66 miles in length. The earth-work was commenced from the Vámbori end, and was given by task-work to several petty contractors. The system of petty task-work proved successful, as the work was done within the anticipated time. Estimated cost, Rs. 38,573.

137. *Road between Tisgaon and Páthardi (Local Funds).*—During the year the embankments on this road were about three-fourths completed, and the cuttings about half done. Estimated amount, Rs. 33,078.

138. *Karanji Ghát road (Local Funds).*—The improvements to this ghát consist of throwing up an earthen bank, nearly a mile in length, on the outer edge of the lower part of the road, and planting it with a milkbush hedge; adding a dry stone kerbing a little over two miles in length; building dry stone revetment walling at the two reversing stations, including dry stone parapets: the road in places has been widened 3 to 5 feet: side gutters were improved; and masonry slab drains at the channel crossings are being constructed. Estimated cost, Rs. 5,766.

139. *Road from Kalas to Akola (Local Funds).*—During the year the road surface was murammed and consolidated by rolling. The masonry of road dams, 6 in number, and a dip, were completed. Expenditure, Rs. 6,404.

140. *Road from Sangamner to Kalas (Local Funds).*—The unfinished rock cutting and filling over drains were completed; stone kerbing was provided for a length of about 1,500 running feet, in mile number 68. Two small road dams, one of dry stone, and the other of stone and mortar, were constructed, and the work completed. Expenditure, Rs. 11,718.

141. *Road near Vitta Ghát on the Loni-Bári Road (Local Funds).*—The project provides for filling up the gap between the 79th and 80th mile-stones, where the present road will be submerged by the Mahladevi tank. Though the distance crossed in a bee line is only one mile, the length of the proposed road is 2·82 miles, as it has to skirt the hills in order to keep above the highest flood levels of the tank. The cuttings and banks have been about half completed during the year. Estimated cost, Rs. 22,700; expenditure, Rs. 6,058.

142. *Washira Ghát, &c., from Thugaon viâ Wáshira and Pimpalgaon to Kotul (Local Funds).*—This country track runs southward from the 71st milestone of the Loni-Bari road near Thugaon, and passes by Wáshira and Pimpálgaon to Kotul, which is a large village, and forms a central bazár for the Dángvan (hilly country) villages. The road was passable for country carts as far as Wáshira Ghát, except for a short distance before it reaches Washira, where it went, for about 800 feet, through the sandy bed of a nála. It was, therefore, proposed to make a deviation along the east bank of the nála, and cut easy approaches down each bank at the place where the present track leaves the nála. The former made road commenced about half a mile from the foot of the steep ghát, and was carried along the foot of the hills, but had become almost impassable, and therefore it was proposed to make a road along the edges of the adjoining fields. The original line of the ghát was too steep and had no drainage arrangements, and the lower quarter of a mile has, therefore, been reconstructed with easier gradients. A dry stone parapet wall, with lime and stone coping, was built in places; dips and a paving of stone and lime were provided in three places on the ghát. The work of cutting in earth between Thugaon and Wáshira nála, and of a nála between Wáshira and the Washira Ghát were carried out. The approach to the east side of the Mula river near Kotúl, was constructed of stone and lime, and provided with guard stones, also a kerbing of stone was provided for about 600 feet near the river.

143. **Poona and Kirkee.**—*Bridle-path on the north of the Railway at Poona.*—A bridle-path from the Sungaon over-bridge to the over-bridge east of the Railway Station, a distance of 3,900 feet, has been constructed. Expenditure, Rs. 2,188.

144. **Poona District and Sholapur.**—*Constructing 2nd section of the road from Lonávla to Paud (Local Funds).*—The road is 2 miles and 513 yards in length, commencing at the Lonávla woods, and finishing at the foot of the Sakar Pathar Ghát. The width of the road is 18 feet, 16 feet of which is to be covered with 7 inches of muram. Masonry slab drains are provided to the smaller nálás, and road dams to the larger. The earthwork and masonry is in progress. Estimated cost, Rs. 11,578.

145. **Satara.**—*Sátára-Tásgaon road (Local Funds).*—The roadway has been improved in places by raising embankments and constructing road dams to certain nálas; work in progress.

146. *Mulharpeth-Pandharpur Road (Local Funds).*—A portion of the roadway, 8 miles in length, from Mulharpeth to Umruz, is being improved by raising embankments and constructing culverts. Total expenditure, Rs. 16,840.

147. *Peth-Sángli Road (Local Funds).*—The whole length of this road is being improved by raising embankments, and building drains, &c. Total expenditure, Rs. 38,300.

148. *Wái-Aderki Ghát Road (Local Funds).*—A number of masonry drains have been constructed on this road during the year, at a cost of Rs. 2,502.

149. **Kaladgi.**—The road from the town of Bágalkot to the Railway Station was in progress; one drain and nearly three-fourths of the road having been completed.

150. On the Bijápur-Honvád section of the road from Mirya Bay to Shindgi, the British portion (13·7 miles) was nearly completed; the Kurundvád portion (8·8 miles) was in progress, the work of embankment and collection of muram having been nearly finished.

151. In connection with the improvements to the crossing of the Krishna river at Kolhár, on the Sholápur-Hubli road, the work of embankment was completed, and muram for the whole portion collected and partly spread; also one bridge and one nála dip were completed

152. With the exception of numbering bridges and fixing mile-stones, the whole work of the Kájiloni-Bágalkot section of the road from Vengurla to Hungund *viâ* the Amboli Ghát was completed.

153. Part of embankment was done and materials were collected for bridges and drains on the road from Muddebihál to Almati.

154. With the exception of the paved crossing of the Málprabha river, numbering bridges, and putting up mile-stones, the work on the Bágalkot-Hungund road was completed. (Local Funds).

155. The expenditure during the year on the road from Guledgud to Kattigeri Railway station was confined to the collection of materials for masonry works, &c. (Local Funds).

156. **Belgaum.**—On the road from Belgaum to Panchgaon, 4 bridges, 8 culverts, 32 drains, and 2 wells were completed during the year. The road surface was improved and completed as far as the 32nd mile.

157. The Bridge in the north approach of the Satgatti Bridge, on the mail road from Poona to Belgaum, was in progress; the foundations were nearly all filled in at the close of the year.

158. A rest-house at Amboli, on the Belgaum and Vengurla line of road, to serve as permanent head quarters for the Public Works Subordinate in charge, was very nearly completed.

159. The whole of the work (as sanctioned) of the road from Nipáni to Dájipur, at the head of the Phondá Ghát, was completed, with the exception of about 10 miles between Nidori and the Chikatra river, which will be completed in 1884-85; but some large streams still remain unbridged.

160. On the Sankeshvar and Gad Hinglaj road, a few drains, which had given way owing to their having been built on black soil, were re-constructed during the year.

161. The materials collected during 1882-83 for improving the road from Bágevádi to Saundatti were spread and rolled, and the work completed. (Local Funds).

162. **Dha'rwa'r.**—With the exception of the hard crossing over the Mewandi nála, the whole of the road from Gadag to Hesrur on the Tungabhadra river, *vid* Dambal, was completed.

163. The work carried out during the year under report in connection with the causeway across the Bennihalla nála, near Navalgund, consisted of approaches to connect the causeway with the neighbouring roads, and a retaining wall in front of the causeway.

164. The two portions of the Sirsi and Bádámi road between Abigeri and Ron, and Kotmuchgi and Abigeri, were entirely finished. (Local Funds).

165. The portion between Mundargi and Virapur Pass of the Masur and Mundargi road was completed. (Local Funds).

166. A small portion of the Hirekerúr and Warda road in Kod Táluka was made. (Local Funds).

167. The culverts on the Havanur and Samagi road in the Kurajgi Táluka were completed; those in Hángal Táluka were in progress. (Local Funds).

168. **Kola'ba.**—In Mahád Táluka of the Kolába district, a small piece of road from Gothe Budruk to the creek opposite to Dásgaon, intended as a junction between the Mahpral to Varandha Ghát road on the south side, and the Nágothna-Mahábaleshvar road on the north side of the Savitri river, was in progress. (Local Funds).

169. The road over the Muthowle Khind, in the Mángaon táluka of the Kolába Collectorate, was half finished. (Local Funds).

170. **Ratna'giri.**—The Amba Ghát road, which was opened for traffic in 1882-83, was entirely finished during the year under report.

171. A small deviation near Poladpur, on the Ratnágiri and Poladpur road, was carried out as a Famine relief work.

172. The road from Sangameshvar to Sakharpé, one of the feeders to the Amba Ghát road, was put in hand during the year; the bridge over the Sakharpé Nála with approaches was also commenced.

173. Wooden bridges, with approaches, on the Hathkambé and Dájipur road were completed.

174. **Ka'nara.**—Improvements to the Arbyle Ghát, on the road from Kárwár to Hubli, were in progress. Several small drains were completed, and the work of clearing jungle, embankment, cutting in murum and rock, collecting, spreading and rolling metal, was in hand.

175. The unfinished portion (6 miles) of the road from Siddápur to Nilkund was completed during the year, from Local Funds, assisted by a Provincial grant-in-aid.

176. A deviation to improve the portion of the Ankola and Belki road between the 25th and 27th miles was carried out, from Local Funds.

177. **Kara'chi.**—Of the proposed road from Bawalpur to Johi, in the Sehwan District, about 1¼ mile, with masonry bridges and culverts, were completed from Local Funds, costing Rs. 3,560. The work has been suspended, pending a decision as to the best means of crossing the Loheri Dhora, a wide depression carrying a large volume of water during rain or flood.

178. **Upper Sind Frontier.**—*Culverts on the road from Garhi Hasan to Thul (Local Funds.)*—Five culverts of pucka brick and lime masonry have been constructed on this road, four of which were completed in 1882-83, and the 5th, of 5 feet span, in the past year. The total outlay has been Rs. 3,153, of which Rs. 680 were expended in 1883-84.

179. **Shika'rpur.**—The earthwork of a road from Ghoghora to Bhangi Kalhora was completed for 5 miles, and that of the remaining 2¾ miles well advanced. Materials for bridges were collected and foundations of some put in. The estimated cost is Rs. 6,431, of which Rs. 3,817 were spent during the year. (Local Funds).

2.—BRIDGES.

180. **Surat.**—*Reconstruction of the Ránder wing approach of the Hope Bridge.*—The bank from this bridge to Ránder village has been eroded, and the floods of 1883 cut off the toe of the approach of the bridge on the Ránder side, leaving a gap about 25 feet wide; and also washed away a portion of the Ránder road, causing a break of communication between the bridge and Ránder town. A temporary diversion is made to restore traffic and allow of the reconstruction of the damaged approach. Stones that were buried in silt and washed away in the gap have been collected; the remaking of the approach has been commenced, and the gap has been partially filled up. Stone for pitching and rubble work is under collection. Expenditure in 1883-84, Rs. 6,992.

181. *Bridge over the Khári between Amroli and Chapra Bhatta (Local Funds.)*—This work has been completed during the year, in which the outlay has been Rs. 2,283.

182. *Dip across the Kim river between Vudali and Shakol (Local Funds.)*—A dip, 477 feet long, and 18 feet wide, has been constructed across the Kim river, the pavement of which is of stones, 8" thick, diagonally laid, with metalled approaches on both sides, at an outlay of Rs. 4,999.

183. **Broach.**—*Bridge across the Bhúkhi Creek, on the Broach and Dehej Road (Local Funds.)*—The foundations of two land piers and the east abutment and wing walls have been laid in, as also the concrete footings of the west abutment and wing walls. Arrangements for the iron superstructure are in hand. Expenditure in 1883-84, Rs. 43,042.

184. **Kaira.**—*Bridges over the Vankdi and Dohi Rivers.*—These bridges are on the Jhalod road; that over the Vankdi river consisting of nine, and that over the Dohi River of three spans of 20 feet each, of brick and lime masonry. The bridge over the Dohi has been completed; but the foundations of the Vunkdi Bridge have given much trouble, owing to the early monsoons of the past two years. Both abutments and four piers have been constructed to springing level, and it is hoped that the foundations of the other four piers will be put in before next rains, and the bridge opened before the monsoon of 1885. Total outlay, Rs. 17,952, of which Rs. 4,917 have been expended in 1883-84.

185. *Bridges and Drains on the Godhra and Sunth Road (British portion) (Local Funds).*—Bridges and drains are to be built on a portion of a line joining Sunth with the Godhra and Dohad Road. This is now only a cleared line, (30 miles,) of which a length of 20 miles is in British territory, and it is proposed to improve this by bridging the water-courses, and providing banks and cuttings where required. Earthwork in approaches, &c., nearly completed; materials prepared, and foundations in progress. Expenditure in 1883-84, Rs. 8,691.

186. **Ahmedabad.**—*Culvert near level crossing at the Railway Station, Viramgám, on the Viramgám-Deckawada Road (Local Funds).*—This culvert, which is situated on the Viramgám and Deckawada road, consists of 3 concrete spans, 4' each, and has been constructed to obviate the difficulty during the monsoon in approaching the Railway Station from the east. Earthen approaches completed, and metal spread. Expenditure in 1883-84, Rs. 2,403.

187. *Bridge at Parántij, on the Parántij-Ahmednagar Road (Local Funds.)*—To assist traffic and passengers between Parántij and Ahmednagar, a bridge of 30' span has been constructed of burnt brick and lime masonry. Expenditure in 1883-84, Rs. 3,892.

188. **Belgaum.**—Bridges over the Nálas at Jangwad and Mogloyhal, on the Belgaum and Linganmut Road, were completed, and the road over them opened to traffic before the rains.

189. **Kánara.**—The bridge over the Nuji Nula, on the road from Kadra to Shetowna, was completed; that over the Borphalli Nála was nearly half finished.

190. **Poona District and Sholápur.**—*Masonry Bridge across the River Karah at Sisvad.*—The archwork is in progress, and it is hoped that the roadway over the bridge will be ready by the monsoon. Expenditure during 1883-84, Rs. 11,410.

191. *Bridge over Malad Nála, on the Poona-Sholápur Road.*—The whole of the work of this bridge has been completed at a total outlay of Rs. 25,871.

192. **Ahmednagar.**—*Bridge over the Sita Rapid.*—A masonry bridge of one arch of 24 feet span was completed. Great difficulty in excavating foundations was experienced, owing to strong underground springs, but the work of filling in was only commenced after securing firm foundations. Expenditure, Rs. 3,237.

193. **Hyderabad.**—A bridge over the Guni, estimated to cost Rs. 16,778, was completed during the year, at a total cost of Rs. 16,381, from Local Funds. The bridge has 6 spans of 27 feet each, with rolled iron girders, carrying a roadway of teak planking. The piers, abutments, and foundations are brick masonry.

194. A brick masonry bridge, of 35 feet span, has also been completed on the road from Tando Bago to Dadwáh, at an outlay of Rs. 3,282 from Local Funds.

195. **Shikárpur.**—A masonry bridge, of 27 feet span, was constructed on the Ragibwáh; bridges over the Mirwáh and Garangwáh were commenced and completed up to springing; and one of 30 feet was nearly completed over the Naínwáh (Local Funds)

196. **Upper Sind Frontier.**—*Bridge over the Mirzawah, on the road from Mirpur to Chana.*—A bridge of 20 feet span, of pucka brick and lime work throughout, has been constructed over this canal, at a cost of Rs. 2,432.

5.—BOAT-BRIDGES AND FERRIES.

197. **Ahmednagar.**—*Wire rope and Standards and a second iron boat for the Pravára river at Kalus (Local Funds.)*—The erection of standards was completed, the tindal's quarters half finished, and the west side approach road made passable. Expenditure, Rs. 1,524.

6.—ACCOMMODATION FOR TRAVELLERS.

198. **Belgaum.**—A Dharmshála at Telsang, in the Athni Táluka, was constructed, from Local Funds.

199. **Kaládgi.**—The work of converting the Masjid near Sultan Mahomed's Mausoleum at Bijápur into a Travellers' Bungalow, was entirely finished during the year.

200. **Panch Maháls.**—Two rest-houses have been under construction in the Panch Mahálls District, and the superstructure of the buildings has been completed at an outlay of Rs. 2,818.

201. **Shikárpur.**—A new Travellers' Bungalow at Sukkur, estimated to cost Rs. 10,250, was commenced, and raised up to roofing, the expenditure during the year being Rs. 6,752, from Local Funds.

III.—MISCELLANEOUS PUBLIC IMPROVEMENTS.

202. The outlay under this head has been Rs. 6,52,075, of which Rs. 4,45,585 have been expended on Original Works; Rs. 1,20,659 on Repairs; Rs. 80,232 on Establishment: and Rs. 5,599 on Tools and Plant. The principal works under execution, or completed during the year are as under:—

1.—TOWN BUILDINGS.

203. **Kaladgi.**—Protective works, consisting of an earthen bund, with sluice gates and a masonry groin, were constructed at Ilkal, to prevent the town being flooded by the waters of the nála running close by it. The outlay has been incurred from Municipal funds, assisted by a Provincial grant-in-aid.

5.—WATER-SUPPLY.

204. **Bombay.**—*Improving the tank near Government House, Parel.*—The banks have been removed and relined to an elliptical shape, and protected by a rubble stone and lime wall; shallow banks have been filled in, raised, and silt removed. A waste water pipe has been provided. A sludge pipe has been laid from the bottom of the tank to a drain in the compound of Government House, to allow of the tank being emptied periodically. Total outlay Rs. 32,586, of which Rs. 10,588 have been expended in 1883-84.

205. **Surat.**—*Tank at Dihan (Local Funds).*—A masonry approach, paved with Porebandar stones, is being constructed, and the tank deepened. Materials for the sluice gate have been collected. Total outlay, Rs. 2,138, of which Rs. 184 were expended in 1883-84.

206. **Kaira.**—*Wells and Tanks in the Kaira District (Local Funds.)*—Four wells have been under construction in the Kaira District during the year, of which 3 have been completed and 1 is in progress; and improvements to 16 tanks, required for village water-supply, have been undertaken, of which 6 have been completed, and the remainder have made good progress. The total outlay during the year on these has been Rs. 18,891.

207. **Sa'ta'ra.**—*Satára Water Supply (Municipal Funds.)*—The Dam of the reservoir at Kás is complete, with the exception of some pitching, which remains to be done. With the exception of ¼ mile in 1st section, and one mile in 2nd section, the earthworks of the channel are complete. Most of the masonry works are also complete. Expenditure during the year, Rs. 1,24,898.

208. **Poona.**—*Talegaon Dabhade Water Supply (Municipal Funds.)*—This work, which includes a storage reservoir, a cast iron main from the reservoir to the town, and a service reservoir at the town, was commenced in December 1883; by the end of the year the greater part of the puddle trench under the dam of the reservoir had been excavated, and a portion of it filled in; a small portion of the earthwork of the dam had also been executed. The work is estimated to cost Rs. 34,621, and is met by a loan which the Municipality have received. The population is 4,900.

209. *Junnar Water Supply* (*Municipal Funds.*)—This work is of a similar character to that at Talegaon: it was commenced in January 1884, and by the end of the year, the greater part of the puddle trench under the dam of the reservoir was excavated and partly filled in. The cost of the scheme is estimated at Rs. 40,252, which is to be met by the Municipality. The town has a population of 10,373.

210. **Belgaum.**—A well at Kapoli, in the Khánápur Táluka, has been constructed from Local Funds.

211. **Dha'rwa'r.**—The tank at Tirlapur, in the Navalgund Táluka, has been improved: the tank was deepened, the feeding channel cleared out and repaired, and a masonry sluice, to connect the service and silting tanks, constructed (Local Funds).

6.—DRAINAGE.

212. **Ahmedabad.**—*Excavation of a Drainage Channel at Dholka.*—The project is for draining the rain water which accumulates about Dholka in pits, along an old natural watercourse, after the rainy season. A channel is to be excavated from Patlia Tank to the village of Nesra, about 8 miles from Dholka, the bottom width of which throughout is to be 12 feet, with side slopes of 1½ to 1. Nearly ⅓th of the work is done. The cost is to be met partly from Municipal and Local, and partly from Provincial funds. Rs. 1,273 were expended in 1883-84, out of the total estimated outlay of Rs. 4,450.

7.—HARBOURS.

213. **Tha'na.**—*Extending Chendni Bandar and erecting a Store Shed.*—The bandar has been completed. The store shed, 100′ × 40′ and 12′ high, is of corrugated iron, supported on teak posts and iron trusses. The walling of corrugated iron, is on three sides only, the side facing the creek being open. A part is partitioned off as an office. The work is in progress, and has been constructed partly from Imperial and partly from Southern Ports Funds. The total outlay has been Rs. 27,730, of which Rs. 15,570 were expended in 1883-84.

214. **Aden.**—*Adding an iron roof over the Godown at the Maala Pier.*—This work has been completed during the past year, at a total outlay of Rs. 7,733, of which Rs. 5,486 were expended during the year.

215. **Kara'chi.**—*Manora Breakwater.*—The cost of the repairs to the breakwater are now borne by the Karáchi Harbour Board; but it may be briefly stated here, that the work stands well, as it has now done for nine successive monsoons; that the concrete capping on the harbour side, to make up for subsidence, was continued for a length of 123 feet, and the sloped capping on the sea side for 30 feet; also that the arrangement for running out a red light to the beacon at the outer end of the Breakwater, by means of a wire rope, from the cliff, for a length of 1,650 feet, was carried out, at a cost during the year of Rs. 1,225, against the estimate of Rs. 1,464.

216. *Dredging of the Harbour.*—The dredging of the Harbour was carried on from the annual grant, which during this year was reduced to the former amount of 1 lakh of rupees. Under this grant 121,054 tons were dredged in rectification of the entrance channel, and 177,546 tons within the harbour, chiefly in the improvement of the channel between the Manora and Keamari anchorages, and in the enlargement of the latter. The average cost of the dredging for the year was 4 annas 9 pies per ton, being a reduction of 5 pies on the rate of the previous year; but the cost would have been further reduced, if the additional lighterage plant, applied for in the previous year, could have been sanctioned. The quantity of dredging executed in the harbour during the year by the Karáchi Harbour Board was 342,263 tons. Under the dredging grant 634 tons of rock were quarried from Deep-Water Point by the divers, and deposited in the line of the west training groin, in which also 13,110 tons were deposited from the quarries, extending it about 600 feet, *i.e.*, from section 5½ to 6½, and making the total length 4,503 feet, out of 7,340 proposed.

217. *Harbour Surveys.*—The cost of the Harbour Surveys, excepting fixed Public Works Department establishment, as stated in last year's report, now falls on the Harbour Board; but it may here be mentioned, that the recent periodical survey, which will be reported on in detail in due course, shows good results from the vigorous dredging which is now being carried on, especially in the channel between the Manora and Keamari anchorages and in the channel leading from Keamari to the Native Jetty. The former indeed promises soon to form an important addition to the anchorage space of the harbour, and the latter has made the Native Jetty accessible to small seagoing steamers, with a good prospect of further improvement.

8.—LIGHT-HOUSES.

218. **Aden.**—*Constructing a Light-house on Obstruction Point at Perim.*—A new Lighthouse has been commenced, to act as a guiding light for the narrow straits at Perim. Under the advice of the Elder Brethren of Trinity House, it has been decided to provide a 4th order Dioptric Light for this Light-house, in lieu of the 6th order originally indented for; the distinctive character of the light being obtained by means of occultations, instead of by revolution. The masonry work of the tower has been completed up to the level of the light, and further progress has been suspended pending receipt of the machinery from England. Expenditure during the year, Rs 3,257.

MISCELLANEOUS.

219. **Surat.**—*Protection of North Bank, River Tápti, above the Hope Bridge.*—The river has been trending gradually towards the Ránder bank, and eroding this from the Hope Bridge up to Ránder. During last year's floods the river forced a passage across the line of road at the Ránder approach, causing a gap. To prevent this erosion, light spurs of round timbers from 6″ to 9″ in diameter, and 75′ to 150′ long, have been thrown out from the bank between the bridge and Ránder, at intervals of from 200 to 400 feet. These spurs have been backed with fascines, bamboo screens, and babool tree branches, and floating groins. Silt has been deposited near the bank, and the erosion checked. The work is in progress, and a good deal of change may be effected before the monsoon sets in; the run of the river is improved, the sand bank island above the bridge is flattened out, and portions of it shifted down through the bridge. Expenditure in 1883-84, Rs. 5,980.

220. **Aden.**—*Providing sleeping accommodation in connection with the Soldiers' and Sailors' Institute at Steamer Point.*—This work, which was commenced in 1882-83, was completed during the year, the total outlay being Rs. 2,945.

BOMBAY PRESIDENCY
Part I.
Gujarat and the Tapti Valley
Scale, 40 Miles to an Inch.
KATHIAWAR
CUTCH
RUN OF CUTCH
GULF OF CUTCH
GULF OF CAMBAY
CENTRAL INDIA
CENTRAL PROV.
UDEYPUR
BANSWARA
DUNGARPUR
PALANPUR
DEESA
RADHANPUR
AHMEDABAD
BARODA
CAMBAY
BROACH
SURAT
NAVSARI
DHARAMPUR
BANSDA
JAWHAR
DAHANU
BHUSAL
NIMAR
INDORE
DHAR
JHABUA
RAJPIPLA
SURGANA
NAWANAGAR
RAJKOT
JUNAGADH
PORBANDAR
DHORAJI
GONDAL
JODIYA
JAMNAGAR
MORVI
WANKANER
WADHWAN
LIMBDI
DHRANGADRA
HALVAD
MALIA
MANGROL
VERAVAL
KODINAR
DIU
Govt. Photozinco. Office, Poona, 1883.

BOMBAY
KHANDESH
BERAR
RATNAGIRI
KOLHAPUR
SHOLAPUR
BELGAUM
DHARWAR
KANARA
GOA
MYSORE TER
MADRAS PRES
BOMBAY PRESIDENCY
Part II.
The Deccan, Konkan and Karnátic.
Scale 40 Miles to an Inch.

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